

### **REMARKS**

By this amendment, claim 2 has been cancelled, claims 1 and 13 have been amended, and claims 18-22 have been added. Thus, claims 1, 3-9 and 13-23 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

In items 2-10 on pages 2-8 of the Office Action, claims 1, 2 and 4 were rejected under 35 U.S.C. 102(e) as being anticipated by Park et al. (U.S. 7,100,743); claim 4 was rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Park et al. in view of Andrione et al. '859 (U.S. 4,386,859); claims 1, 3 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Andrione '226 (U.S. 4,493,226); claims 5 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Andrione '859 and further in view of Andrione '226; claims 13, 14, 16 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Andrione '859 and further in view of Andrione '226; claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Andrione '859 and Andrione '226 and further in view of Khoo et al. (U.S. 5,842,420); and claims 6 and 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al.

These rejections are clearly inapplicable to the claims as now amended, for the following reasons.

With exemplary reference to the drawing figures, claim 1 has now been amended to specify that the centrifugal pump includes a throttle section 40 provided with a suction hole 39, disposed in the lubricant oil pooling portion, for allowing the lubricant oil 23 pooled in the container 18 to be drawn into the centrifugal pump. In addition, claim 1 has been amended to specify that the centrifugal pump further includes a hollow cylinder (42) extending upward from a lower end of the crankshaft 24. In addition, claim 1 now specifies that, as shown, for example, in Fig. 2, the suction hole 39 has a diameter smaller than a diameter of the hollow cylinder 42.

As described, for example, at lines 13-22 of page 7 of the substitute specification filed November 16, 2006,

*“crankshaft 24 includes the centrifugal pump formed of the following two elements: (a) slant path 42 extending upward from the lower end of crankshaft 42 with its axis slanting toward the outer rim of crankshaft 24, and (b) throttle section 40 leading to lubricant oil 23. Thus lubricant oil 23 on the lower end of crankshaft 24 surrounded by throttle section 40 is subject to the centrifugal force due to the rotation of crankshaft 24. Throttle section 40 receives the downward force generated by the centrifugal force, thereby increasing upward force. Further, the slant of path 42 efficiently increases the pump head of lubricant oil 23. As a result, lubricant oil 23 can be transferred by the greater force regardless of the rotating direction.”*

The downward force generated by the centrifugal force is, of course, a result of the suction hole 39 having a smaller cross-sectional area (i.e., a smaller diameter) than the hollow cylinder of slant path 42.

In contrast to the present invention as thus now recited in claim 1, the Park et al. patent discloses, in both Figs. 11 and 15, a pump seat 245, 345 which corresponds to the throttle section of the present application. However, as can be clearly seen in Figs. 11 and 15 of the Park et al. patent, the cross-sectional area (the diameter) of the pump seat 245, 345 in Figs. 11 and 15 of the Park et al. patent is larger than the cross-sectional area of the shaft oil hole 241 (or even the sum of the cross-sectional areas of the shaft oil holes 341 in Fig. 15). This is clearly evident from Figs. 11 and 15 of the Park et al. patent.

Accordingly, it is apparent that claim 1 of the present application is not anticipated by the Park et al. patent. Thus, the Park et al. patent does not contemplate the same generation of centrifugal force as contemplated in the present invention due to the specific structure of the present invention as recited in claim 1. There is clearly no teaching or suggestion in the references of record that would have made it obvious to a person of ordinary skill in the art to

modify the structure of Figs. 11 or 15 of Park et al. or to make any combination of the references of record in such a manner as to result in or otherwise render obvious the present invention of claim 1. Therefore, it is respectfully submitted that claim 1, as well as claims 3-9 and 21-23 which depend therefrom, are clearly allowable over the prior art of record.

Claim 13 has been amended similarly to claim 1 and, in particular, now specifies that fluid suction path 42 is defined in a throttle section 40 having a suction hole 39, disposed in the lubricant oil pooling portion, for allowing the lubricant oil 23 pooled in the container 18 to be drawn into the fluid suction path 42; that the fluid suction path 42 is further defined in a hollow cylinder 42 extending upward from a lower end of the crankshaft 24; and that the suction hole 39 has a diameter smaller than a diameter of the hollow cylinder 42.

Accordingly, with this amendment to claim 13, it is respectfully submitted that claim 13 is not anticipated by the Park et al. patent, and would not have been obvious in view of the Park et al. patent, for the same reasons as set forth above in support of claim 1. Therefore, it is respectfully submitted that claim 13, as well as claims 14-20 which depend therefrom, are clearly allowable over the prior art of record.


The Examiner's attention is next directed to the new dependent claims 18-23 which set forth additional features of the present invention and further define the invention over the prior art. For example, claims 18 and 21 specify that the hollow cylinder 42 has an axis slanting toward an outer wall of the crankshaft 24 (see the axis in Fig. 2, and the slanted orientation in Fig. 1). Claims 19 and 22 specify that the throttle section 40 constitutes a lower portion of a cap 41 that is secured to a lower end of the crankshaft 24, and that the suction hole 39 is defined in a bottom end of the cap 41. Claims 20 and 23 specify that the cap 41 is press-fit in the lower end of the crankshaft 24 (see page 5, lines 24 and 25 of the substitute specification filed November 16, 2006).

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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